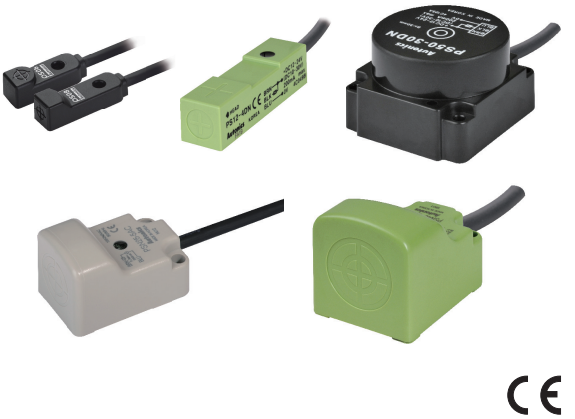
Rectangular, Standard Type Proximity Sensor



Various Sizes

Various Protection Circuits

IP67

8mm

Compact Size (PS08)

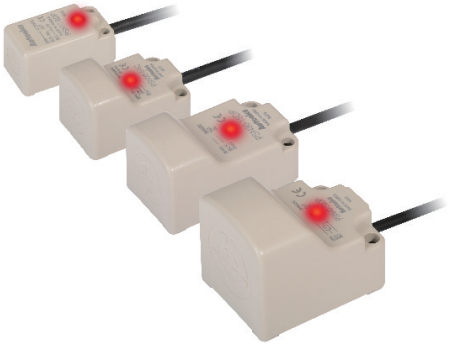
1kHz

Response Frequency (PS08)

▣ Features

[Common Features]

- **Various Sizes Available For Diverse Applications**
  8×8 mm, 12×12 mm, 17×17 mm, 25×25 mm, 30×30 mm, 40×40 mm, 50×50 mm

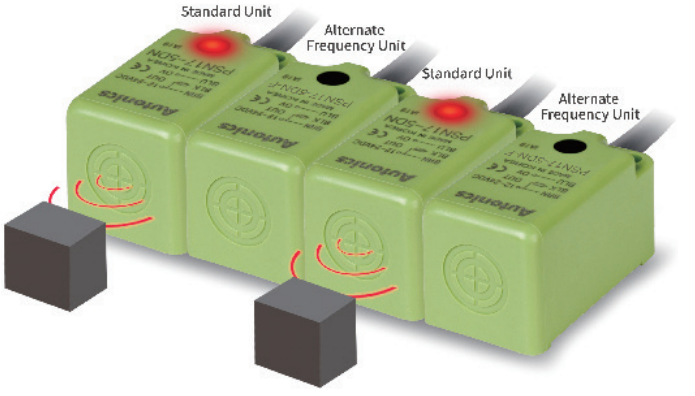


- **IP67 Protection Structure**
  IP67 protection structure allows stable and error-free operation even in wet or dusty environments.

[PSN17 Features]

- **Operation Status Indicator (Red LED)**

The vibrant LED operation indicators (red) allow users to quickly and easily identify operation status.

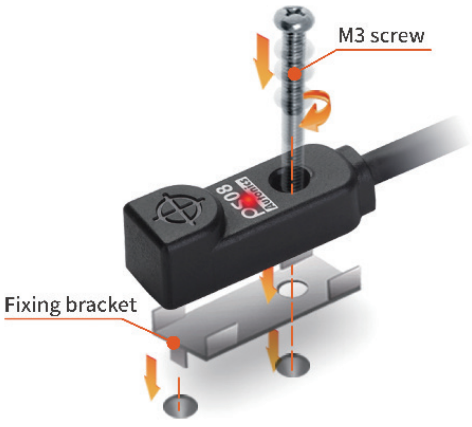


▣ Features

[PS08 Features]

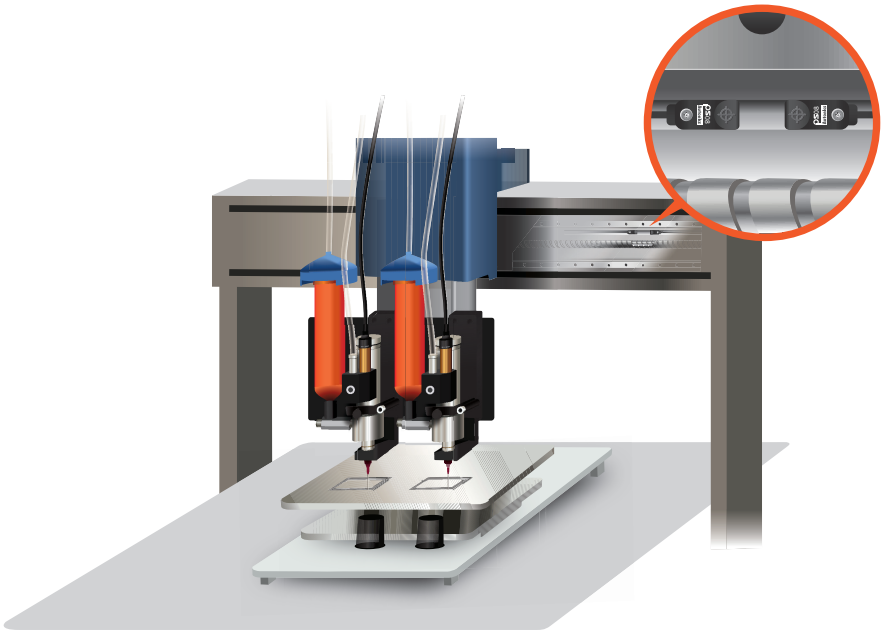
- **1 kHz Response Frequency**
  1 kHz response frequency allows detection of fast moving targets.

- **Installation Using M3 Screw**
  Easy installation with standard M3 screws



▣ Application

Compact rectangular inductive proximity sensors PS08 series used for position control of cartesian coordinate robots (linear robots)



Rectangular, Standard Type Proximity Sensor

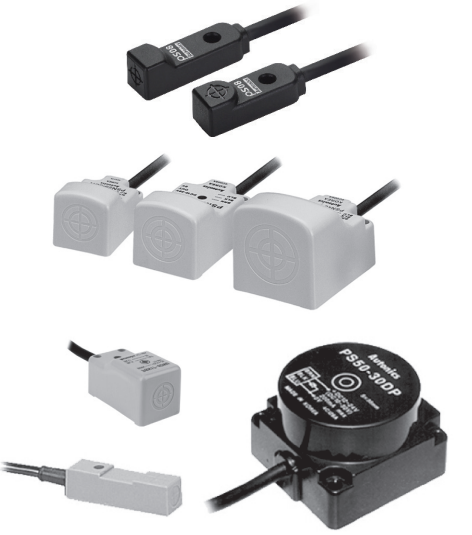
Line-up

▣ Features

- Excellent noise immunity with specialized sensor IC
- Long life cycle, reliable performance, economical, and easy-to-install
- Operation indicator (red LED)
- Built-in surge protection circuit
- Built-in overcurrent protection circuit (DC types)
- Built-in reverse polarity protection circuit (DC 3-wire types)
- IP67 protection structure (IEC standard)

[PS08]
- Compact (8×8 mm) size allows easy installation in tight or limited spaces
- 1 kHz response frequency allows detection of fast moving targets
- Easy installation with standard M3 screws

[PSN17]
- Alternate frequency models allow adjacent installation of multiple sensors without interference



Please read "Caution for your safety" in operation manual before using.

▣ Specifications

● DC 2-wire type

※The existing PST17 is upgraded its function and design and changed as PSNT17.
※The case color of Normal Close type is changed from orange to gray.

Model		PSNT17-5DO PSNT17-5DC	PSNT17-5DOU PSNT17-5DCU
Sensing distance		5mm	
Hysteresis		Max. 10% of sensing distance	
Standard sensing target		18×18×1mm (iron)	
Setting distance		0 to 3.5mm	
Power supply (operating voltage)		12-24VDC (10-30VDC)	
Leakage current		Max. 0.6mA	
Response frequency※1		700Hz	
Residual voltage		Max. 3.5V	
Affection by Temp.		Max. ±10% for sensing distance at ambient temperature 20℃	
Control output		2 to 100mA	
Insulation resistance		Over 50MΩ (at 500VDC megger)	
Dielectric strength		1,500VAC 50/60Hz for 1 minute	
Vibration		1mm amplitude at frequency of 10 to 55Hz (for 1 min) in each X, Y, Z direction for 2 hours	
Shock		500m/s² (approx. 50G) in each X, Y, Z direction for 3 times	
Indicator		Operation indicator: Red LED	
Environment	Ambient temperature	-25 to 70℃, storage: -30 to 80℃	
	Ambient humidity	35 to 95%RH, storage: 35 to 95%RH	
Protection circuit		Surge protection circuit, Over-current protection circuit	
Protection structure		IP67 (IEC standard)	
Cable		Ø4mm, 2-wire, 2m (AWG22, Core diameter: 0.08mm, Number of cores: 60, Insulator out diameter: Ø1.25mm)	
Approval		CE	
Unit weight		Approx. 71g	

※1: The response frequency is the average value. The standard sensing target is used and the width is set as 2 times of the standard sensing target, 1/2 of the sensing distance for the distance.
※Environment resistance is rated at no freezing or condensation.

● DC 3-wire type

※The existing PST17 is upgraded its function and design and changed as PSN17.
※The case color of PNP output type is changed from orange to gray.

● PS Series

Model	PS08-2.5DN PS08-2.5DP PS08-2.5DN2 PS08-2.5DP2 PS08-2.5DNU PS08-2.5DPU PS08-2.5DN2U PS08-2.5DP2U	PS12-4DN PS12-4DP PS12-4DN2 PS12-4DNU PS12-4DPU PS12-4DN2U	PS50-30DN PS50-30DP PS50-30DN2 PS50-30DP2
Sensing distance	2.5mm	4mm	30mm
Hysteresis	Max. 20% of sensing distance	Max. 10% of sensing distance	
Standard sensing target	8×8×1mm (iron)	12×12×1mm (iron)	90×90×1mm (iron)
Setting distance	0 to 1.7mm	0 to 2.8mm	0 to 21mm
Power supply (operation voltage)	12-24VDC (10-30VDC)		
Current consumption	Max. 10mA		
Response frequency※1	1,000Hz	500Hz	50Hz
Residual voltage	Max. 1.5V		
Affection by Temp.	Max. ±10% for sensing distance at ambient temperature 20℃		
Control output	Max. 200mA		
Insulation resistance	Over 50MΩ (at 500VDC megger)		
Dielectric strength	1,500VAC 50/60Hz for 1minute		
Vibration	1mm amplitude at frequency of 10 to 55Hz (for 1 min) in each X, Y, Z direction for 2 hours		
Shock	500m/s² (approx. 50G) in each X, Y, Z direction for 3 times		
Indicator	Operation indicator: Red LED		
Environment: Ambient temperature	-25 to 70℃, storage: -30 to 80℃		
Environment: Ambient humidity	35 to 95%RH, storage: 35 to 95%RH		
Protection circuit	Surge protection circuit, Over-current protection circuit, Reverse polarity protection circuit		
Protection structure	IP67 (IEC standard)		
Cable	Ø2.5mm, 3-wire, 1m	Ø4mm, 3-wire, 2m	Ø5mm, 3-wire, 2m
	AWG28, Core diameter: 0.08mm, Number of cores: 19, Insulator out diameter: Ø1.25	AWG22, Core diameter: 0.08mm, Number of cores: 60, Insulator out diameter: Ø1.25	
Meterial	Case: PC, Standard cable (black): Polyvinyl chloride (PVC).	Case: Heat-resistant Acrylonitrile butadiene styrene, Standard cable (black): Polyvinyl chloride (PVC)	Case: PBT, Standard cable (black): Polyvinyl chloride (PVC).
Approval	CE		
Weight※2	Approx. 30g (approx. 16g)	Approx. 77g (approx. 62g)	Approx. 256g (approx. 220g)

● PSN Series

※The case color of Normally Closed type is changed from orange to gray.

Model	PSN17-5DN PSN17-5DP PSN17-5DN2 PSN17-5DP2 PSN17-5DNU PSN17-5DPU PSN17-5DN2U PSN17-5DP2U PSN17-5DN-F	PSN17-8DN PSN17-8DP PSN17-8DN2 PSN17-8DP2 PSN17-8DNU PSN17-8DPU PSN17-8DN2U PSN17-8DP2U PSN17-8DN-F PSN17-8DP-F PSN17-8DN2-F PSN17-8DNU-F PSN17-8DPU-F PSN17-8DN2U-F	PSN25-5DN PSN25-5DP PSN25-5DN2 PSN25-5DP2	PSN30-10DN PSN30-10DP PSN30-10DN2 PSN30-10DP2	PSN30-15DN PSN30-15DP PSN30-15DN2 PSN30-15DP2	PSN40-20DN PSN40-20DP PSN40-20DN2 PSN40-20DP2
Sensing distance	5mm	8mm	5mm	10mm	15mm	20mm
Hysteresis	Max. 10% of sensing distance					
Standard sensing target	18×18×1mm (iron)	25×25×1mm (iron)		30×30×1mm (iron)	45×45×1mm (iron)	60×60×1mm (iron)
Setting distance	0 to 3.5mm	0 to 5mm	0 to 3.5mm	0 to 7mm	0 to 10.5mm	0 to 14mm
Power supply (operation voltage)	12-24VDC (10-30VDC)					
Current consumption	Max. 10mA					
Response frequency※1	700Hz	200Hz	300Hz	250Hz	200Hz	100Hz
Residual voltage	Max. 1.5V					
Affection by Temp.	Max. ±10% for sensing distance at ambient temperature 20℃					
Control output	Max. 200mA					
Insulation resistance	Over 50MΩ (at 500VDC megger)					
Dielectric strength	1,500VAC 50/60Hz for 1minute					
Vibration	1mm amplitude at frequency of 10 to 55Hz (for 1 min) in each X, Y, Z direction for 2 hours					
Shock	500m/s² (approx. 50G) in X, Y, Z direction for 3 times					
Indicator	Operation indicator: Red LED					
Environment: Ambient temperature	-25 to 70℃, storage: -30 to 80℃					
Environment: Ambient humidity	35 to 95%RH, storage: 35 to 95%RH					
Protection circuit	Surge protection circuit, Over-current protection circuit, Reverse polarity protection circuit					
Protection structure	IP67 (IEC standard)					
Cable	Ø4mm, 3-wire, 2m (AWG22, Core diameter: 0.08mm, Number of cores: 60, Insulator out diameter: Ø1.25)					
Meterial	Case: Heat-resistant Acrylonitrile butadiene styrene, Standard cable (black): Polyvinyl chloride (PVC)					
Approval	CE					
Weight※2	Approx. 71g	Approx. 70g		Approx. 111g		Approx. 185g

● AC 2-wire type

Model		PSN25-5AO PSN25-5AC	PSN30-10AO PSN30-10AC	PSN30-15AO PSN30-15AC	PSN40-20AO PSN40-20AC
Sensing distance		5mm	10mm	15mm	20mm
Hysteresis		Max. 10% of sensing distance			
Standard sensing target		25×25×1mm (iron)	30×30×1mm (iron)	45×45×1mm (iron)	60×60×1mm (iron)
Setting distance		0 to 3.5mm	0 to 7mm	0 to 10.5mm	0 to 14mm
Power supply (operating voltage)		100-240VAC (85-264VAC)			
Leakage current		Max. 2.5mA			
Response frequency※1		20Hz			
Residual voltage		Max. 10V			
Affection by Temp.		Max. ±10% for sensing distance at ambient temperature 20℃			
Control output		5 to 200mA			
Insulation resistance		Over 50MΩ (at 500VDC megger)			
Dielectric strength		1,500VAC 50/60Hz for 1 minute			
Vibration		1mm amplitude at frequency of 10 to 55Hz (for 1 min) in each X, Y, Z direction for 2 hours			
Shock		500m/s² (approx. 50G) in X, Y, Z direction for 3 times			
Indicator		Operation indicator: Red LED			
Environment	Ambient temperature	-25 to 70℃, storage: -30 to 80℃			
	Ambient humidity	35 to 95%RH, storage: 35 to 95%RH			
Protection circuit		Surge protection circuit			
Protection structure		IP67 (IEC standard)			
Cable		Ø4mm, 2-wire, 2m (AWG22, Core diameter: 0.08mm, Number of cores: 60, Insulator out diameter: Ø1.25mm)			
Approval		CE			
Unit weight		Approx. 65g	Approx. 106g		Approx. 152g

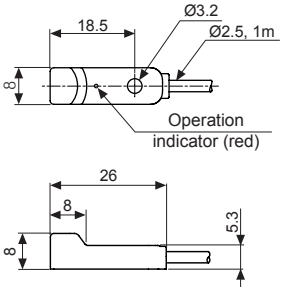
※1: The response frequency is the average value. The standard sensing target is used and the width is set as 2 times of the standard sensing target, 1/2 of the sensing distance for the distance.
※Environment resistance is rated at no freezing or condensation.

▣ Dimensions

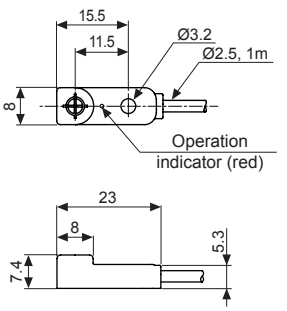
(unit: mm)

● PS08

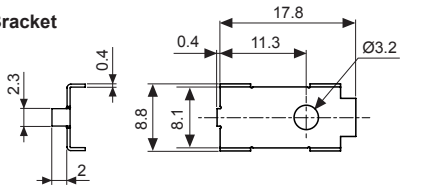
● Standard type



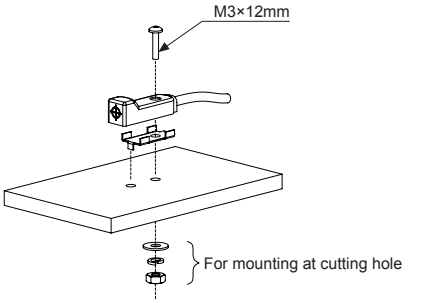
● Upper sensing type



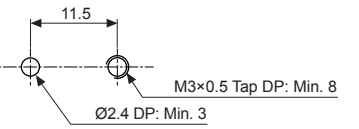
● **Bracket**



※Installing bolts must be a M3×12mm truss bolt and tightening strength should be max. 5kgf.cm.
If installing this unit not as this method, it may cause damage to the functions.



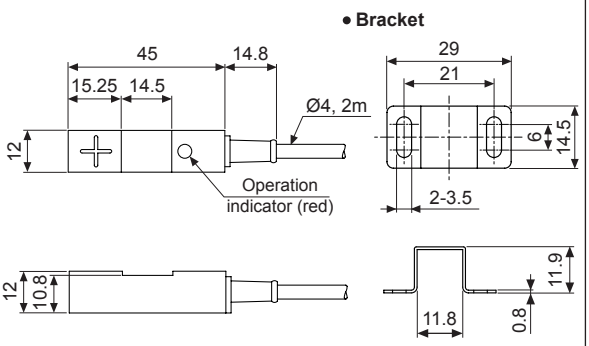
● **Mounting hole cut-out**



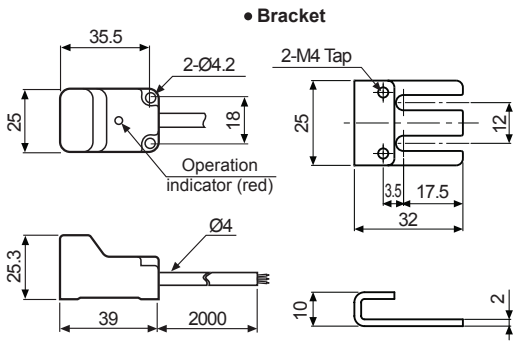
▣ Dimensions

(unit: mm)

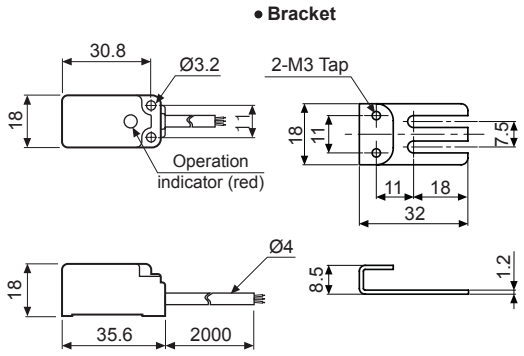
● PS12



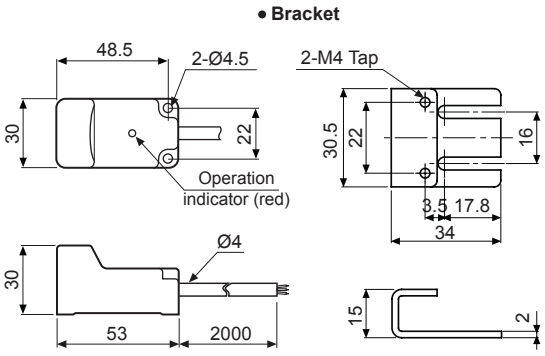
● PSN25



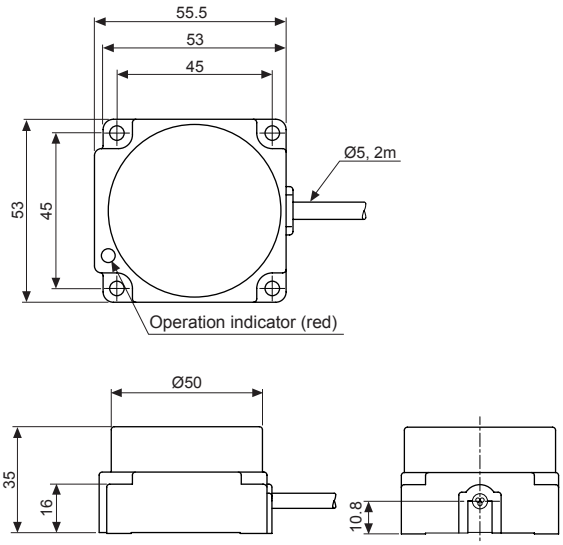
● PSN17 / PSNT17(Former : PS17/ PST17)



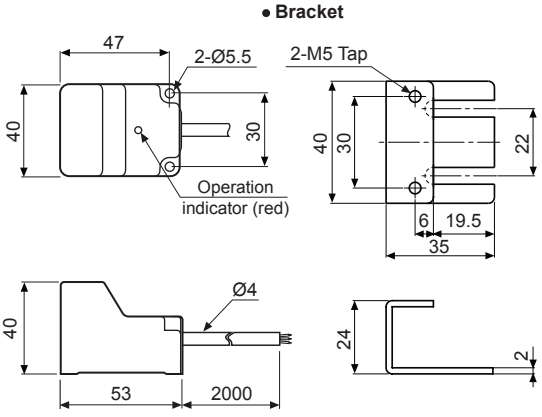
● PSN30



● PS50

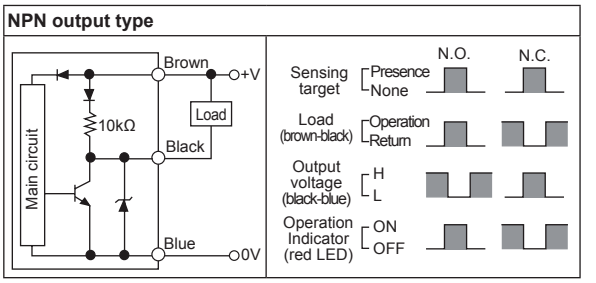


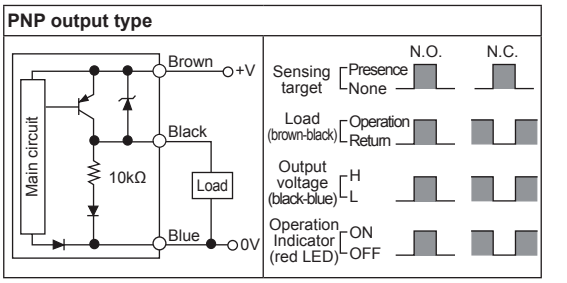
● PSN40



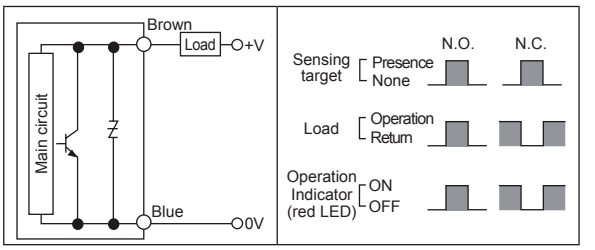
▣ Control Output Diagram And Load Operation

◎ DC 3-wire type

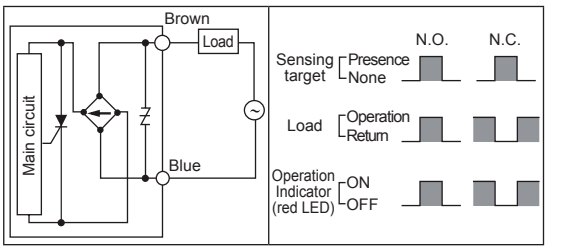




◎ DC 2-wire type

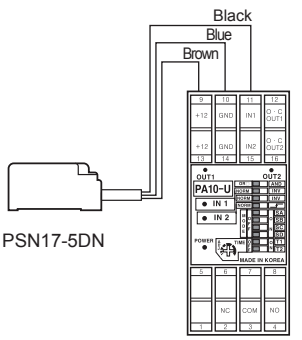


◎ AC 2-wire type



▣ Connections

◎ DC 3-wire type



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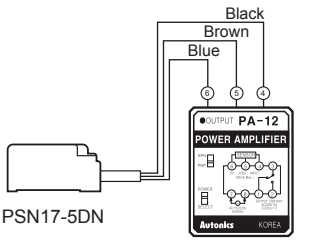
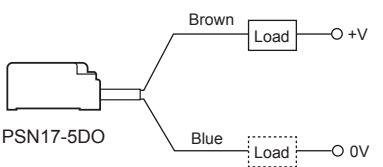


< PA-12 >

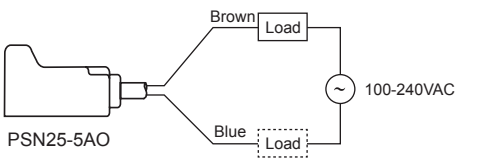
※There is NPN/PNP selection switch in PA-12.

◎ DC 2-wire type



※The load can be connected to either wire.

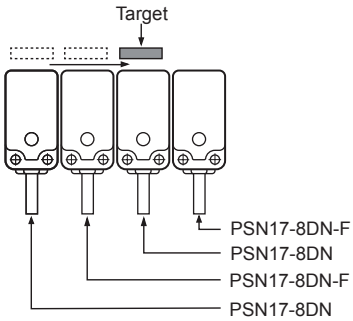
◎ AC 2-wire type



※The load can be connected to either wire.

▣ Proper Usage

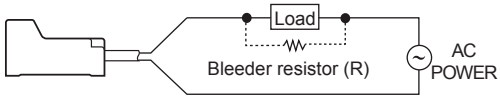
◎ Differential frequency



When installing several proximity sensor closely, it may cause malfunction due to mutual interference. Therefore, please use differential frequency for the application
※Differential frequency type is only for 17 square.

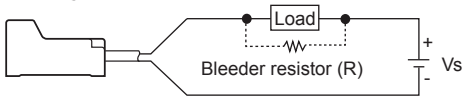
◎ In case of the load current is small

● AC 2-wire type

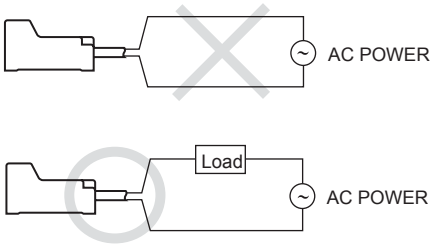


110VAC: Min. 20kΩ 3W
220VAC: Min. 39kΩ 10W

● DC 2-wire type



◎ Connection of the power supply



When using DC 2-wire and AC 2-wire type, a load must be connected before applying power; otherwise, components can be damaged.

It may cause return failure of load by residual voltage.
If the load current is under 5mA, please make sure the residual voltage is less than the return voltage of the load by connecting a bleeder resistor in parallel with the load as shown in the diagram.

$$R \le \frac{Vs}{I}(k\Omega) \qquad P > \frac{Vs^2}{R}(W)$$

[I: Action current of load, R: Bleeder resistance, P: Permissible power]

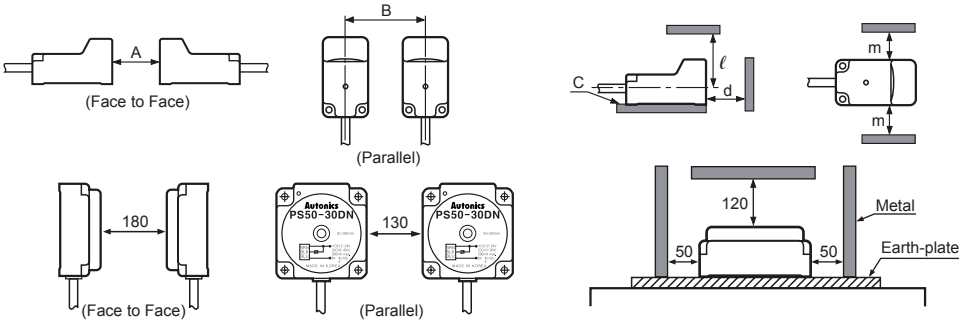
Please make the current on proximity sensor smaller than the return current of load by connecting a Bleeder resistor in parallel.
※W value of Bleeder resistor should be bigger for proper heat dissipation.

$$R \le \frac{Vs}{Io\text{-}Ioff}(k\Omega) \qquad P > \frac{Vs^2}{R}(W)$$

[Vs: Power supply, Io: Min. action current of proximity sensor
Ioff: Return current of load, P: Number of Bleeder resistance watt]

◎ Mutual-interference & Influence by surrounding metals

When several proximity sensors are mounted close to one another a malfunction of the may be caused due to mutual interference. Therefore, be sure to provide a minimum distance between the two sensors as below chart indicates.



(unit: mm)

Item \ Model	PS08	PS12	PSN17 / PSNT17		PSN25	PSN30		PSN40
	2.5mm	4mm	5mm	8mm	5mm	10mm	15mm	20mm
A	16	24	30	48	30	60	90	120
B	16	24	36	40	40	50	65	70
C	5	5	5	5	5	5	5	5
d	15	12	15	24	15	30	45	60
ℓ	11	18	24	33	25	30	45	45
m	8	12	18	20	20	25	35	35